Attorney Docket SEL 209

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of)
)
Jun Koyama)
)
Serial No.: 09/666,521)
)
Filed: September 20, 2000)
)
For: EL Display Device and Electronic Device)
)
Art Unit: 2674)
)
Examiner: Kimhung Nguyen)

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TRANSMITTAL OF APPEAL BRIEF

Sir:

Applicants are submitting herewith Applicant's Appeal Brief Under 37 CFR 41.37 in furtherance of the Notice of Appeal filed May 31, 2005. A check in the amount of $500 is being filed with this brief in accordance with 37 CFR 41.20(b).

The undersigned authorizes the Patent Office to charge our deposit account 50/1039 for any other fees required by this appeal.

Respectfully submitted,

Date: July 28, 2005

Mark J. Murphy
Registration No. 34,225

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street; Suite 2850
Chicago, Illinois 60606
(312) 236-8500
Customer no. 000026568

Attorney Docket No. SEL 209

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In Re Application of:	Jun Koyama
Serial No.:	09/666,521
Filed:	September 20, 2000
For:	EL Display Device And Electronic Device
Examiner:	Kimhung Nguyen
Art Unit:	2674

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APPEAL BRIEF UNDER 37 C.F.R. 41.37

Mark J. Murphy
Attorney for Appellants

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street, Suite 2850
Chicago, Illinois 60606
(312) 236-8500

Customer no. 000026568

July 28, 2005

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APPEAL BRIEF UNDER 37 C.F.R. §41.37

This Brief is in furtherance of the Notice of Appeal filed in this Application Serial No. 09/666,521 on May 31, 2005.

This appeal is in response to the Advisory Action of May 24, 2005 and the Final Rejection of January 28, 2005 rejecting all the pending claims.

The claims of the present application are clearly patentable over the cited references, as will be shown *infra*, and Appellants respectfully request the Board to so rule and allow the application.

i. STATEMENT OF REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee: Semiconductor Energy Laboratory Co., Ltd., 398, Hase, Atsugi-shi, Kanagawa-ken 243-0036 Japan.

ii. STATEMENT OF RELATED APPEALS AND INTERFERENCES

To the best of Appellant's, Appellant's legal representatives' and Assignee's knowledge, there are no appeals or interferences pending which will affect or be affected by the Board's decision in this appeal.

iii. STATUS OF CLAIMS

Claims 1-36 are pending and rejected. Claims 1-36 are the appealed claims and appear *infra* at p. 13 *et seq.*

iv. STATUS OF AMENDMENTS

No amendment after final has been filed in this application.

v. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter is directed to an electronic device comprising an EL display device or to an EL display device. In accordance with §41.37(c)(v), Applicants are providing the following concise explanation of the claimed subject matter. Applicants are providing examples of where each claim element is shown or discussed in the specification and drawings of the present application. These citations are merely examples, as the application has further disclosure of these elements throughout the application.

Independent Claim 1 is directed to an electronic device (p. 3, lns. 21-25; p. 5, ln. 21 - p. 8, ln. 7) comprising:

an EL display device (Figs. 1, 3A-5C) including:

a thin film transistor (151; p. 5, ln. 24);

a pixel electrode (346; p. 19, lns. 4-5) being electrically connected to the thin film transistor;

an EL element (152; p. 5, ln. 25; 346, 348, 349, 350; p. 19, ln. 5 – p. 20, ln. 18) with the pixel electrode as a cathode or an anode; and

an insulating layer (351; p. 20, lns. 19-24) for sealing the EL element;

an applying means (160; p. 6, lns. 3-10; 110, 120; p. 5, lns. 22-23) for applying an analog image signal to the EL element (this element is a means plus function element under 35 USC §112, sixth paragraph; structure in the specification and drawings corresponding to this function

include image processing circuit 160 which includes A/D conversion circuit 163 and D/A conversion circuit 164; p. 6, lns. 3-6 and source driver circuits 110, 120; p. 5, lns. 22-23); and

a correcting means (161; p. 6, lns. 5-7) for gamma (γ)-correcting the analog image signal (this element is a mean plus function element under 35 USC §112, sixth paragraph; structure in the specification and drawings corresponding to this function include correction circuit 161 which includes correction memory 162; p. 6, lns 5, 7-10).

Independent Claim 9 is directed to an EL display device (p. 3, lns. 21-25; p. 5, ln 21 – p. 8, ln. 7; Figs. 1, 3A-5C) comprising:

a thin film transistor (151; p. 5, ln. 24);

a pixel electrode (346; p. 19, lns. 4-5) being electrically connected to the thin film transistor;

an EL element (152; p. 5, ln. 25; 346, 348, 349, 350; p. 19, ln. 5 – p. 20, ln. 18) with the pixel electrode as a cathode or an anode;

an insulating layer (351; p. 20, lns. 19-24) for sealing the EL element;

an applying means (160; p. 6, lns. 3-10; 110, 120; p. 5 lns. 22-23) for applying an analog image signal to the EL element (this element is a means plus function element under 35 USC §112, sixth paragraph; structure in the specification and drawings corresponding to this function include image processing circuit 160 which includes A/D conversion circuit 163 and D/A conversion circuit 164; p. 6, lns. 3-6 and source driver circuits 110, 120; p. 5, lns. 22-23); and

a correcting means (161; p. 6, lns. 5-7) for gamma (γ)-correcting the analog image signal (this element is a mean plus function element under 35 USC §112, sixth paragraph; structure in the specification and drawings corresponding to this function include correction circuit 161 which includes correction memory 162; p. 6, lns 5, 7-10),

wherein the thin film transistor, the pixel electrode, the EL element, the insulating layer, the applying means and the correcting means are formed over a same substrate (p. 4, lns. 3-7; p. 7, lns. 4-8).

Independent Claim 19 is directed to an electronic device (p. 3, lns. 21-25; p. 5, ln. 21 – p. 8, ln. 7) comprising:

an EL display device (Figs. 1, 3A-5C) comprising:

a thin film transistor (151; p. 5, ln. 24);

a pixel electrode (346; p. 19, lns. 4-5) being electrically connected to the thin film transistor;

an EL element (152; p. 5, ln. 25; 346, 348, 349, 350; p. 19, ln. 5 – p. 20, ln. 18) with the pixel electrode as a cathode or an anode; and

an insulating layer (351; p. 20, lns. 19-24) for sealing the EL element;

a source driver circuit (110, 120; p. 5, lns. 22-23) for applying an analog image signal to the EL element; and

a correction circuit (161; p. 6, lns. 5-7) for gamma (γ)-correcting the analog image signal.

Independent Claim 28 is directed to an EL display device (p. 4, lns. 3-7; p. 7, lns. 4-8; Figs. 1, 3A-5C) comprising:

a thin film transistor (151; p. 5, lns. 24);

a pixel electrode (346; p. 19, lns. 4-5) being electrically connected to the thin film transistor;

an EL element (152; p. 5, ln. 25; 346, 348, 349, 350; p. 19, ln. 5 – p. 20, ln. 18) with the pixel electrode as a cathode or an anode;

an insulating layer (351; p. 20, lns. 19-24) for sealing the EL element;

a source driver circuit (110, 120; p. 5, lns. 22-23) for applying an analog image signal to the EL element; and

a correction circuit (161; p. 6, lns. 5-7) for gamma (γ)-correcting the analog image signal,

wherein the thin film transistor, the pixel electrode, the EL element, the insulating layer, the source driver circuit and the correction circuit are formed over a same substrate (p. 4, lns. 3-7; p. 7, lns. 4-8).

The dependent claims are based, either directly or indirectly, on one of the above-identified independent claims, and accordingly, all the elements listed above for the respective independent claims, and the support for these elements in the specification and drawings are as mentioned *supra*. These dependent claims also add additional elements or limitations which are supported in the specification and drawings. The dependent claims not discussed herein are not argued separately.

Dependent Claims 2, 10, 20, 29 are dependent on claims 1, 9, 19, 28 respectively, and state that the device of the independent claims further comprises a memory (162, p. 6, lns. 7-10) for storing data for the gamma (γ)-correcting (p. 4, lns. 1-2).

Dependent Claims 5, 14, 24, 33 are dependent on independent claims 1, 9, 20, 29 respectively and state that in the device of the independent claims, the gamma (γ)-correcting amplifies a signal of red (p. 4, lns. 16-17).

Dependent Claims 6, 15, 25, 34 are dependent on independent claims 1, 9, 20, 29 respectively and state that in the device of the independent claims, the gamma (γ)-correcting attenuates a signal of blue or green (p. 4, lns. 16-17).

Dependent Claims 7, 16, 26, 35 are dependent on independent claims 1, 9, 20, 29 respectively, and state that in the device of the independent claims, the gamma (γ)-correcting is independently applied for each of signals of blue, green and red (p. 4, lns. 17-18).

vi. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following are the grounds for rejection presented for review:

1. Claims 1-3, 5-7, 9-12, 14-16, 18-22, 24-26, 28-31 and 33-35 are rejected under 35 USC §103(a) as being unpatentable over Yamada et al. (US 6,072,450) in view of Yamazaki et al. (US 6,388,652).

2. Claims 8, 17, 27 and 36 are rejected under 35 USC §103(a) as being unpatentable over Yamada et al. and Yamazaki et al. '652 and further in view of Yamazaki et al. (US 6,445,005).

3. Claims 4, 13, 23 and 32 are rejected under 35 USC §103(a) as being unpatentable over Yamada et al. and Yamazaki et al. '652 further in view of Choi et al. (US 6,583,577).

vii. ARGUMENT

A. BACKGROUND

The present invention is directed to an electronic device including an EL display device or to an EL display device for displaying an image which has a desirable good balance of brightness between red, blue, and green light, even in EL elements with different levels of brightness of red,

blue and green. Further, the device of the claimed invention has the unexpected effect that, even in the case of an EL material wherein a red light component of a wavelength to be extracted by the color filter is small, it is possible to provide an EL display device displaying an image of a desired RGB (red, green, blue) balance. The claimed invention achieves this objective by making gamma (γ) correction to, for example, a video signal to adjust the luminescent brightness of RGB. See e.g. page 4, lns. 19-23 of the specification of the present application.

Applicants will now address the rejections of the claims in the Final Rejection of January 28, 2005 and the Advisory Action of May 24, 2005.

B. THE REJECTIONS OF THE CLAIMS SHOULD BE REVERSED

In the Final Rejection and Advisory Action, the Examiner rejected all the pending claims as being unpatentable for obviousness under 35 USC §103. However, as shown below, the Examiner has failed to make a prima facie case of obviousness. Instead, each rejection uses hindsight reconstruction to improperly combine references to arrive at the claimed inventions. As a result, the rejections are erroneous and should be reversed.

1. Under The Law, The Examiner Is Required To Establish A Prima Facie Case Of Obviousness

Under 35 U.S.C. §103, the burden is on the Examiner to produce evidence that the claimed invention is prima facie obvious. In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); MPEP §2142. If the Examiner fails to make out a prima facie case of obviousness, then the rejection is improper,

should be overturned, and Applicant is entitled to a patent. Rijckaert, 9 F.3d at 1532, 28 USPQ2d at 1956; In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1984); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). A prima facie case of obviousness cannot be based on a combination of references wherein the combination of references is based on hindsight reconstruction using the claimed invention as a template. In re Fritch, 972 F.2d 1260, 1266 23 USPQ2d 1780, 1784 (Fed. Cir. 1992); In re Oetiker, 24 USPQ2d 1443, 1444-1446 (Fed. Cir. 1992). There must be some teaching, suggestion or motivation in order to combine references in order to establish a prima facie case of obviousness. Id.; MPEP§ 2142, 2143 and 2143.01.

2. The Examiner Has Failed To Make A Prima Facie Case Of Obviousness As The Rejection of The Claims Is Based On Hindsight Reconstruction

In the Final Rejection, the Examiner rejects Claims 1-3, 5-7, 9-12, 14-16, 18-22, 24-26, 28-31 and 33-35 under 35 USC §103(a) as being obvious over a combination of Yamada et al. in view of Yamazaki et al. '652. The Examiner also rejects Claims 8, 17, 27 and 36 under 35 USC §103(a) as being unpatenable over Yamada et al. and Yamazaki et al. '652 in view of Yamazaki et al. '005, and rejects Claims 4, 13, 23 and 32 under 35 USC §103(a) over Yamada et al. and Yamazaki et al. '652 in view of Choi et al. Each of these rejections is improper, as the combination of Yamada et al. and Yamazaki et al. '652 is the basis for each rejection, and such combination is improper.

In making the §103 obviousness rejection of independent Claims 1, 9, 19 and 28 over Yamada et al. in view of Yamazaki et al. '652 in the Final Rejection and the Advisory Action, the Examiner contends that Yamada et al. discloses in Figs. 1-4 and 17 an electronic device comprising an EL display device including a thin film transistor, an EL element, and an insulating layer for sealing the EL element, and a source driver circuit (citing Fig. 20 in Yamada et al.).

The Examiner admits that Yamada et al. does not disclose a source driver circuit for applying an analog image signal to the EL element, or a correction circuit for gamma-correcting the analog image signal.

The Examiner, however, cites Yamazaki et al. '652 and contends that it discloses in Fig. 14 an EL display comprising a source driver circuit (25) that may apply an analog signal of RGB to the EL element, and a correction circuit (18) for gamma-correcting the analog image signal.

In support of the combination of Yamada, et al. and Yamazaki, et al. '652, the Examiner then states that:

> "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of using the a [sic] source driver circuit for applying as [sic] analog signal of RGB to the EL element; and a correction circuit for gamma-correcting the analog image signal as taught by Yamazaki et al. into the device system of Yamada et al., because this would provide an [sic] analog signals transmitted from outside are RGB signals having a horizontal and vertical synchronization signals and performing extension of a time axis and are outputted as analog signals, (see column 17, lines 55-62)." Page 3 of Final Rejection.

With regard to the memory for storing data for gamma (γ)-correcting of dependent Claims 2, 10, 20 and 29, in his rejection, the Examiner admits that Yamada et al. does not disclose or suggest such a memory but alleges that Yamazaki et al. '652 discloses a memory (17) for storing gamma(γ)-correcting (citing Fig. 14 in the reference). The Examiner then contends that:

> "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of using the memory as taught by Yamazaki et al. into the device system of Yamada et al. because this would for performing extension of a time axis and are outputted as analog signals (see VRAM 17, column 17, lines 59-62)." Page 3 of Final Rejection.

However, with regard to each of the above rejections, column 17, lines 55-62 of Yamazaki et

al. '652, which the Examiner relies upon as the basis for combining references, states:

> "Analog signals transmitted from the outside are an R signal 11, a G signal 12, a B signal 13, a horizontal synchronization signal 14, and a vertical synchronization signal 15. The RGB signals 11 to 13 pass through an A/D converter 16, a VRAM 17 (performing extension of a time axis), a τ correction+polarity inversion circuit 18, and a D/A converter 19, and are outputted as analog signals." (emphasis added)

It is respectfully submitted that these statements by the Examiner and the citation to Yamazaki et al. '652 are insufficient to show a teaching or motivation to combine the references. In fact, neither of these "explanations" provide any motivation or reason as to why one skilled in the art would combine these references. Instead, these "explanations" appear to be a mere recital of the claims of the present application.

As the Federal Circuit stated "[I]t is impermissible to use the claimed invention as an instructional manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d at 1266, 23USPQ2d at 1784. Combining references in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness. In re Octiker, 24 USPQ2d at 1444-1446 (Fed. Cir. 1992). Hence, a motivation or teaching must be present to combine the references. Since such a teaching or motivation is absent in the present application, a prima facie case of obviousness has not been established.

Further, the recitation by the Examiner of VRAM 17 of Yamazaki et al. '652 to show the clamed invention is incorrect. VRAM 17 is quite different from, and not directly related to, the correction and polarity inversion circuit 18. Further, the teaching of performing extension of a time axis in Yamazaki et al. '652 relates to the VRAM and not the τ correction and polarity inversion

circuit 18. Hence, it provides no support for the alleged combination.

In each of these rejections, the Examiner appears to have used the claims of the present invention to pick and choose elements from the cited references and then merely states that it would have been obvious to combine these references because the references provide the claimed elements. No teaching or motivation is provided for why one skilled in the art would make such a combination other than that is what is claimed. This is a classic example of improper hindsight reconstruction.

With regard to dependent claims 7, 16, 26 and 35, the Examiner admits that Yamada et al. does not disclose wherein the gamma-correcting is independently applied for each of signals of blue, green and red, as recited in the rejected claims but alleges that Yamazaki et al. '652 discloses this feature. The Examiner then contends that:

> "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of using gamma-correcting is independently applied for each of signals of blue, green and red as taught by Yamazaki et al. into the system of Yamada et al. because this would provide an improvement an EL display having correction values for driving conditions of individual surface of the electron beam." Page 4 of Final Rejection

No citation is given in support of this contention, and Applicant can find nothing in the references to support this statement. Hence, not only is there no motivation or teaching given for this combination of references, but no support is even given for where this feature is allegedly found in the references.

With regard to Claims 5-6, 14-15, 24-25 and 33-34, the Examiner provides no explanation, teaching or motivation for the combination of references to arrive at the claimed invention.

Therefore, the Final Rejection fails to provide the required teaching or motivation to combine references. Hence, a prima facie case of obviousness has not been established, these rejections should be reversed, and the appealed claims allowed.

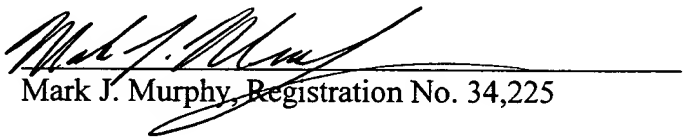
C. CONCLUSION

For at least the reasons stated above, we earnestly and respectfully submit that the rejections under 35 USC §103(a) of the claims of the present application as being unpatentable over the references cited by the Examiner in the Final Rejection are erroneous and improper.

Hence, the rejection of these claims should be reversed, and the claims allowed.

Accordingly, Appellants requests that this Appeal be sustained in all respects, and that all rejections in the Final Rejection be reversed.

Respectfully submitted,



Mark J. Murphy, Registration No. 34,225

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street, Suite 2850
Chicago, Illinois 60606
Customer no. 00026568

July 28, 2005

APPENDIX

APPEALED CLAIMS (37 CFR 41.37(c)(viii))

The text of the claims on appeal is as follows:

1. An electronic device comprising:

an EL display device including:

a thin film transistor;

a pixel electrode being electrically connected to the thin film transistor;

an EL element with the pixel electrode as a cathode or an anode; and

an insulating layer for sealing the EL element;

an applying means for applying an analog image signal to the EL element; and

a correcting means for gamma (γ)-correcting the analog image signal.

2. A device according to claim 1, further comprising:

a memory for storing data for the gamma (γ)-correcting.

3. A device according to claim 1, further comprising:

a color filter being formed at a position corresponding to the pixel electrode.

4. A device according to claim 1,

wherein the EL element comprises,

a first pixel comprising a blue luminescent layer,

a second pixel comprising a green luminescent layer, and

a third pixel comprising a red luminescent layer.

5. A device according to claim 1,

wherein the gamma (γ)-correcting amplifies a signal of red.

6. A device according to claim 1,

wherein the gamma (γ)-correcting attenuates a signal of blue or green.

7. A device according to claim 1,

wherein the gamma (γ)-correcting is independently applied for each of signals of blue, green and red.

8. A device according to claim 1,

wherein the EL element comprises a luminescent layer comprising a polymer organic material.

9. An EL display device comprising:

a thin film transistor;

a pixel electrode being electrically connected to the thin film transistor;

an EL element with the pixel electrode as a cathode or an anode;

an insulating layer for sealing the EL element;

an applying means for applying an analog image signal to the EL element; and

a correcting means for gamma (γ)-correcting the analog image signal,

wherein the thin film transistor, the pixel electrode, the EL element, the insulating layer, the applying means and the correcting means are formed over a same substrate.

10. A device according to claim 9, further comprising:

a memory for storing data for the gamma (γ)-correcting.

11. An EL display device of claim 9, wherein the EL display device is used in an electronic device selected form the group consisting of an EL display, a video camera, a head mount type display, an image reproduction device comprising a recording medium, a portable computer, a personal computer, a portable telephone and a car audio equipment.

12. A device according to claim 9, further comprising:

a color filter being formed at a position corresponding to the pixel electrode.

13. A device according to claim 9,

wherein the EL element comprises,

a first pixel comprising a blue luminescent layer,

a second pixel comprising a green luminescent layer, and

a third pixel comprising a red luminescent layer.

14. A device according to claim 9,

wherein the gamma (γ)-correcting amplifies a signal of red.

15. A device according to claim 9,

wherein the gamma (γ)-correcting attenuates a signal of blue or green.

16. A device according to claim 9,

wherein the gamma (γ)-correcting is independently applied for each of signals of blue, green and red.

17. A device according to claim 9,

wherein the EL element comprises a luminescent layer comprising a polymer organic material.

18. A device according to claim 1, wherein the EL display device is used in an electronic device selected form the group consisting of an EL display, a video camera, a head mount type display, an image reproduction device comprising a recording medium, a portable computer, a personal computer, a portable telephone and a car audio equipment.

19. An electronic device comprising:

an EL display device comprising:

a thin film transistor;

a pixel electrode being electrically connected to the thin film transistor;

an EL element with the pixel electrode as a cathode or an anode; and

an insulating layer for sealing the EL element;

a source driver circuit for applying an analog image signal to the EL element; and

a correction circuit for gamma (γ)-correcting the analog image signal.

20. A device according to claim 19, further comprising:

a memory for storing data for the gamma (γ)-correcting.

21. An EL display device of claim 19, wherein the EL display device is used in an electronic device selected form the group consisting of an EL display, a video camera, a head mount type display, an image reproduction device comprising a recording medium, a portable computer, a personal computer, a portable telephone and a car audio equipment.

22. A device according to claim 19, further comprising:

a color filter being formed at a position corresponding to the pixel electrode.

23. A device according to claim 19,

wherein the EL element comprises,

a first pixel comprising a blue luminescent layer,

a second pixel comprising a green luminescent layer, and

a third pixel comprising a red luminescent layer.

24. A device according to claim 19,

wherein the gamma (γ)-correcting amplifies a signal of red.

25. A device according to claim 19,

wherein the gamma (γ)-correcting attenuates a signal of blue or green.

26. A device according to claim 19,

wherein the gamma (γ)-correcting is independently applied for each of signals of blue, green and red.

27. A device according to claim 19,

wherein the EL element comprises a luminescent layer comprising a polymer organic material.

28. An EL display device comprising:

a thin film transistor;

a pixel electrode being electrically connected to the thin film transistor;

an EL element with the pixel electrode as a cathode or an anode;

an insulating layer for sealing the EL element;

a source driver circuit for applying an analog image signal to the EL element; and

a correction circuit for gamma (γ)-correcting the analog image signal,

wherein the thin film transistor, the pixel electrode, the EL element, the insulating layer, the source driver circuit and the correction circuit are formed over a same substrate.

29. A device according to claim 28, further comprising:

a memory for storing data for the gamma (γ)-correcting.

30. An EL display device of claim 28, wherein the EL display device is used in an electronic device selected form the group consisting of an EL display, a video camera, a head mount type display, an image reproduction device comprising a recording medium, a portable computer, a personal computer, a portable telephone and a car audio equipment.

31. A device according to claim 28, further comprising:

a color filter being formed at a position corresponding to the pixel electrode.

32. A device according to claim 28,

wherein the EL element comprises,

a first pixel comprising a blue luminescent layer,

a second pixel comprising a green luminescent layer, and

a third pixel comprising a red luminescent layer.

33. A device according to claim 28,

wherein the gamma (γ)-correcting amplifies a signal of red.

34. A device according to claim 28,

wherein the gamma (γ)-correcting attenuates a signal of blue or green.

35. A device according to claim 28,

wherein the gamma (γ)-correcting is independently applied for each of signals of blue, green and red.

36. A device according to claim 28,

wherein the EL element comprises a luminescent layer comprising a polymer organic material.